

# Agenda

## Fifth Annual Monitoring and Situational Awareness Conference

Theme: EMS Solution Quality (Modeling and Real-Time Assessment)

October 3, 2017 | 1:00 p.m. – 5:00 p.m. EDT

October 4, 2017 | 8:00 a.m. – 12:00 p.m. EDT

Georgia Power Company  
241 Ralph McGill Blvd. NE  
Atlanta, GA 30308

### Tuesday, October 3, 2017

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**12:00 – 1:00**    **Lunch**

**1:00 – 1:10**    **Welcome and Introduction**

- **Venkat Tirupati, LCRA**

**1:10 – 1:30**    **Keynote Presentation**

- **William O. (Billy) Ball, Southern Company, Chief Transmission Officer & Executive Vice President**

**1:30 – 1:50**    **Analysis of EMS Event Outages**

- **Wei Qiu, NERC**

This presentation will provide an overview of performance of EMS based on the analysis of NERC reportable events from October 2016 to September 2017. The analysis includes the trend in number of reported events, outage restoration times, common themes, and mitigation strategies.

**1:50 – 2:05**    **Break/Networking**

**2:05 – 3:35**    **Modeling and Real Time Assessment Tool**

- **John Baranowski, PJM – Resilience Strategies: Golden Image and Zonal State Estimation**

The presentation will review the design and test approach for PJM's "Golden Image" system that can be used to recover from a catastrophic loss of real-time systems. The current status of PJM's research into creation of a Zonal State Estimator to maintain State Estimator resilience to external model SE failures will also be reviewed.

- **Feng Tu, AEP – AEP's Experience of Updating EMS External Model**

Over three years ago, AEP Transmission Operations (TOps) embarked on a lengthy and detailed effort to greatly enhance the ability of AEP transmission operators to have "situational awareness" of conditions external to AEP that could result in cascading outages, impacting the AEP transmission system. This effort was completed in early 2016 and improved TOps' State Estimator model, as well as Real-Time Contingency Analysis tools, SCADA and visual displays.

While this effort greatly improved AEP's operator's situational awareness, it was very labor intensive to update and validate the models and real time data from each of AEP's neighbors in the Eastern Interconnection. For the most part, our neighbor's systems are changing just as fast as AEP's system – and keeping the external representation of AEP's neighbors up to date is essential to ensure the impacts of changes (i.e. new facilities, unplanned outages) on AEP's transmission facilities is accurately presented to the operators in real time. Therefore a more sustainable method to keep these external models up to date was imperative. CIM (Common Information Model) is a common information platform of management information for systems, networks, applications and services. It is widely adopted and used in the power system industry for power system model management and information exchange, such as PJM, ERCOT and SPP. We will describe AEP's approach of how to update the EMS external model from the CIM model published from RTOs.

- **Durgésh Manjuré, MISO – MISO's Experiences with State Estimator**

This presentation will provide information on MISO's state estimator including performance trends. It will also discuss a recent event pertaining to the loss of state estimation. The operations perspective on how the event was handled and the lessons learned will also be presented.

**3:35 – 3:55 Break/Networking**

**3:55 – 4:55 Panel: Risks and Mitigations for Losing EMS Functions (white paper)**

- **Rich Hydzik, Avista Corp. – Moderator**
- **Brian Thiry, ReliabilityFirst**
- **Stacen Tyskiewicz, BPA**
- **Hassan Hamdar, FRCC**

EMS is a system of computer-aided tools used by System Operators (SOs) to monitor, control, and optimize the performance of the generation and/or transmission system. A white paper of loss of EMS functions has been constructed to identify and discuss the risk of losing EMS functions, analyze the causes of reportable EMS events through the Event Analysis process, and share mitigation strategies used to reduce the risk when operators lose situational awareness tools. Brian Thiry, Stacen Tyskiewicz, and Hassan Hamdar will participate in the panel discussion and share their insights.

**4:55 – 5:00 Session Summary**

- **Jule Tate, NERC, Associate Director of Event Analysis**

## **Wednesday, October 4, 2017**

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**7:00 – 8:00 Breakfast**

**8:00 – 8:05 Welcome and Recap**

**8:05 – 9:05 Lessons Learned from ONCOR 5/4 Event**

- **James Melton, ONCOR**

On May 4, 2017, ONCOR experienced a loss of visibility to the Electric Grid due to a program malfunction. This defect propagated from the Main site to the Disaster Recovery site. Due to the distributed architecture of the TMS, the sequence of failure presented several challenges to both

fix the problem, and minimize the impact on all users of the system. The presentation will describe conditions leading to event, address the lessons learned and actions taken.

- **Vamsi Madam/Thinesh Devadhas, ERCOT**

This presentation explains how the ERCOT EMS performed during the event and process/system improvements made during and after the event.

**9:05 – 9:55 Lessons Learned from EMS Outages**

- **Phil Hoffer, AEP – Loss of ICCP due to Database Sizing Issue**

During a Network Model Update, the combination of the number of points being requested by the State Estimator and the number of points available in ICCP exceeded the capability of the ICCP database and caused a failure of ICCP which resulted in the inability to obtain reliable results from the State Estimator and Contingency Analysis applications. In this presentation, we will describe the cause of the problem and provide some vendor independent suggestions for other companies to mitigate their potential vulnerability to this type of issue.

- **Cory Danson, WAPA – Line Frequency Excursion Causes UPS Shutdown and Control Center Evacuation**

A Transmission Operator's Control Center was evacuated due to an islanded situation. A frequency excursion in excess of 65Hz occurred and caused a hardware shutdown of both control center Uninterruptable Power Supplies. During this excursion SCADA terminals shutdown and the SOs lost situational awareness. It was determined the best course of action was to implement the backup control center operating procedure and transferred to the back-up control center. The presentation will highlight unforeseen impacts of primary and backup system design for UPS equipment specification. The presentation will address the lessons learned and actions taken by the entity to ensure future power supply performance and reliability.

**9:55 – 10:15 Break/Networking**

**10:15 – 11:50 Vendor Discussion Panel (Ed Batalla, FPL – Moderator)**

Four major EMS vendors (ABB, GE/Alstom, OSI and Siemens) will participate in the panel and share their thoughts and opinions on the following topics:

- How do we monitor EMS Data Quality and detect bad data
- How do we monitor EMS SE/RTCA Solution Quality?
- What challenges are you facing with customers for EMS Solution Quality?
- What can we do to improve EMS SE/RTCA Solution Quality?
- What can we do after EMS SE/RTCA Solution Quality becomes bad?
- In need to keep the power grid resilient and the increase in demand for the exchange of data, what are the challenges with exchange of real-time and modeling data?
- How can an overall network model management philosophy help with these data exchanges?

**11:50 – 12:00 Session Summary Wrap-up**

- **Jule Tate, NERC**